



## Alireza Namayandeh

Postdoctoral Scholar, Earth System Science

### Bio

---

#### BIO

Dr. Namayandeh is a postdoctoral fellow at the Doerr School of Sustainability at Stanford University. He earned his Ph.D. in Environmental Nanoscience/Geochemistry from Virginia Tech. His research involves the formation and transformation of natural nanoparticles and their reactions with nutrients and contaminants in soils, water, and air and how these reactions impact human health. His Ph.D. work focused on the formation and transformation kinetics of iron oxy-hydroxides and the effects of adsorbed oxyanions such as arsenic, phosphate, and nitrate.

He is currently studying the generation of toxic particulate materials in soils, plants, and smoke during wildfires. He is also involved in solving global and environmental health problems, particularly in low-income countries. He is working on two projects in Bangladesh focusing on lead exposure and the health impacts of particulate matter formed in coal-burning brick kilns.

Dr. Namayandeh also holds an MFA in theater and uses his science and art experience to integrate environmental justice into his research. While attending Virginia Tech, he founded an organization called Art for Environmental Justice (AEJ) to amplify the voices of underrepresented groups impacted by climate change. He is a maker of eco-performance works, and the staged reading of his latest play, *Rhino 2020*, was performed in Hey Market Theater at Virginia Tech in 2022, which explores the intersection of social extremism and environmental degradation caused by climate change. He is currently working on a project that employs community-based theater to address the environmental justice implications of California wildfires for Farmworkers from Oaxaca, Mexico.

#### HONORS AND AWARDS

- PRISM Baker Fellowship, Stanford University (2022-2023)
- Interdisciplinary Graduate Education Fellowship, Virginia Tech (2021-2022)
- Interdisciplinary Graduate Education Fellowship, Virginia Tech (2018-2019)

#### STANFORD ADVISORS

- Scott Fendorf, Postdoctoral Faculty Sponsor

### Research & Scholarship

---

#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Namayandeh's research interests are centered around three primary areas: 1) the formation and transformation of natural nanoparticles, 2) their interaction with contaminants and nutrients in the Earth's surface environment, and 3) how these interactions impact human health. He is currently studying the generation of toxic

metals in soils at extremely high temperatures. He is also involved in solving global and environmental health problems, particularly in low-income countries. He is working on a project in Bangladesh focusing on lead exposure.

He is also interested to integrate environmental justice into his research. He conducts Eco-theater workshops at Stanford, in which participants create performing arts about the social aspects of California wildfires, including the impact on underrepresented groups such as inmate firefighters.

## LAB AFFILIATIONS

- Scott Fendorf, Soil and Environmental Biogeochemistry (10/12/2022)

## Publications

---

### PUBLICATIONS

- **Effects of Oxyanion Surface Loading on the Rate and Pathway of Ferrihydrite Transformation** *ACS EARTH AND SPACE CHEMISTRY*  
Namayandeh, A., Borkiewicz, O. J., Bompoti, N. M., Watson, S. K., Kubicki, J. D., Chrysochoou, M., Michel, F.  
2023
- **Oxyanion Surface Complexes Control the Kinetics and Pathway of Ferrihydrite Transformation to Goethite and Hematite.** *Environmental science & technology*  
Namayandeh, A., Borkiewicz, O. J., Bompoti, N. M., Chrysochoou, M., Michel, F. M.  
2022
- **TRACE AND RARE EARTH ELEMENT DISTRIBUTION AND MOBILITY DURING DIAGENETIC ALTERATION OF VOLCANIC ASH TO BENTONITE IN EASTERN IRANIAN BENTONITE DEPOSITS** *CLAYS AND CLAY MINERALS*  
Namayandeh, A., Modabberi, S., Lopez-Galindo, A.  
2020; 68 (1): 50-66
- **Calorimetric study of the influence of aluminum substitution in ferrihydrite on sulfate adsorption and reversibility** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*  
Namayandeh, A., Kabengi, N.  
2019; 540: 20-29
- **Genesis of the Eastern Iranian bentonite deposits** *APPLIED CLAY SCIENCE*  
Modabberi, S., Namayandeh, A., Setti, M., Lopez-Galindo, A.  
2019; 168: 56-67
- **Characterization of Iranian bentonites to be used as pharmaceutical materials** *APPLIED CLAY SCIENCE*  
Modabberi, S., Namayandeh, A., Lopez-Galindo, A., Viseras, C., Setti, M., Ranjbaran, M.  
2015; 116: 193-201